

2nd International Conference & Exhibition on Ballast Water Management

19-21 May 2004 • Singapore



Venue • Raffles Town Club • Plymouth Avenue • Singapore 297753

Who Should Attend

Shipowners/Managers

Regulators and
Policymakers

Shipping Associations

Naval Architects

Marine Engineers

Environmental
Organisations

Water Treatment
Specialists

Maritime Lawyers

Highlights

- IMO regulations, standards and protocols for ballast water management practices
- Ballast water issues (current topic status) from conservation and public health viewpoints
- Ballast water treatment technologies and full-scale evaluation
- Safety and economics
- Best practices in ballast water management
- Effective ship designs
- Emerging technologies for ballast water monitoring
- Risk minimisation and assessment
- Regional issues and collaborations

Organised by:



Jointly with:




Supported by:

- US National Science Foundation
- INTERTANKO
- International Chamber of Shipping
- Maritime and Coastguard Agency, UK

**Bringing together
the Shipping,
Maritime and
Research Groups**

INTRODUCTION




Transfer of invasive marine species and pathogens through ships' ballast water is perceived as one of the most pressing marine environmental issues. It is expected that the impending international regulations will stipulate ballast water management procedures for new and existing ships. These regulations will have significant implications on the global shipping and maritime industries.

The First ICBWM held

in Singapore in November 2001 was attended by participants from more than 40 countries. The Second ICBWM will follow up on the success of the First ICBWM by bringing together regulators, policy makers, shipping associations, industry experts, technology developers, marine researchers, environmental organisations and academia from around the world.

In conjunction with the Conference, there will be an exhibition for suppliers of ballast water treatment, monitoring and related systems.



Oral and Poster Presentations

New Directions and Opportunities for Research on Ballast Water Management Techniques
Thomas Waite, National Science Foundation, USA

U. S. Coast Guard Ballast Water Management Program: Prevention of Ship-mediated Invasions through Regulation
Richard Everett
U. S. Coast Guard, USA

The GEF/UNDP/IMO Global Ballast Water Management Programme: Reflections, Achievements, Progress and Plans
Steve Raaymakers
IMO, USA

The Shipowner's Response to the Result of the Diplomatic Conference at IMO in February 2004
Alec Bilney, International Chamber of Shipping

Relevant Factors in the Engineering & Design of Test Facilities for Testing Ballast Water Treatment Devices
Edward Lemieux
Naval Research Laboratory, USA

Regional Ballast Water Management: Working Toward Solutions
Judith Pederson
MIT Sea Grant College Program, USA

Performance Verification Testing of Ship Ballast Water Treatment, Technologies by USEPA/NSF Environmental Technology Verification Program
Thomas Stevens
NSF International, USA

Advances in Singapore Research on Ballast Water Treatment Technologies
Jose Matheickal
Institute of Environmental Science and Engineering, Singapore

A Review of Biocides in the Marine Environment with Emphasis on Applicability to Ballast Water Treatment
Carlton Hunt
Battelle, USA

Media Filters as a Potential Treatment Technology for Ballast Water Treatment
Junko Kazumi
University of Miami, USA

Ballast Water Management - Accumulated Experience on Exchange Methods
Lefteris Karaminas, John Curley
Lloyd's Register, UK

Bacteriological Monitoring of Ships' Ballast Water in Singapore and its Potential Importance for the Management Of Coastal Ecosystems
Volodymyr Ivanov
Nanyang Technological University, Singapore

Role of Secondary Treatment of Ballast Water; a New and Rapid Method to test the Viability of Phytoplankton
Marcel Veldhuis
Royal Netherlands Institute for Sea Research, The Netherlands

Development of Methods to treat Ships' Ballast Water using a Medium Sized Pilot Plant
Stephen Hillman
James Cook University, Australia

Detection and Quantitation of Marine Viruses by Flow Cytometry
Qiwei Qin
Tropical Marine Science Institute, Singapore

Pilot-Scale Evaluations of Venturi Oxygen Stripping onboard the New US Maritime Administration Ballast Water Treatment Test Barge
Mario Tamburri
Alliance for Coastal Technologies, USA

THE ORGANIZERS

The Institute of Environmental Science and Engineering (IESE)

IESE has been created as a centre of research excellence to advance the state-of-the art in environmental science and engineering.

IESE aims to be a world-class centre for environmental science and engineering and serve as a coordinator for environmental R&D investment in Singapore, to meet the country's needs for sustainable growth in a knowledge-based economy. IESE, under the Nanyang Technological University, is organised into six technology centres, i.e. Environmental Engineering, Maritime Research, Environmental Biotechnology, Membrane Technology, Clean Energy and Research of Ecomaterials.

Maritime and Port Authority of Singapore (MPA)

MPA is a self-funding statutory board and the sole regulatory body overseeing Singapore's port and maritime affairs and is responsible for safeguarding Singapore's maritime interests.

Tropical Marine Science Institute

The Tropical Marine Science Institute (TMSI) is a research institute of the National University of Singapore that conducts basic and applied marine research in the fields of oceanography, ecology, environmental science and aquaculture.

— P R O G R A M M E —

First Land-based Tests Results of various Ballast Water Treatment Techniques

Stephan Gollasch
GoConsult, Germany

Challenges in Ballast Water Treatment :A Critical Evaluation of the Use of Chemicals (Biocides) as a Secondary Treatment Step

Jan Boon
Royal Netherlands Institute for Sea Research, The Netherlands

A New Photodegradable Molecule as a Low Impact Ballast Water Biocide: Efficacy Screening on Marine Organisms from Different Trophic Levels

Marco Faimali
Istituto di Scienze Marine - Consiglio Nazionale Delle Ricerche, Italy

A Rapid Thermal Ballast Water Treatment System for a VLCC

Peilin Zhou
Universities of Glasgow and Strathclyde, UK

A new Modular Concept for the Treatment of Ships Ballast Water - The Hamann Project: Updated Results

Thomas Mann
Hamann AG, Germany

Identifying Patterns of Environmental Similarity: An Application for Ballast Water Risk Assessment

Alexandre de Carvalho Leal Neto
GEF/UNDP/IMO Global Ballast Water Management Programme, Brazil

Full-Scale Shipboard Testing of Ballast Water Treatment Systems

David Wright
University of Maryland, USA

Implementation of a Comprehensive Shipboard Ballast Management Plan

William Hurley
The Glosten Associates, Inc., USA

Desoxydation Treatment by Nitrogen Pumping for Ship's Ballast Water

Xiao Jingku
Dalian Maritime University, China

Discussion of the Concept of a Marine Testing Board for Certification of Ballast Water Treatment Technologies

Michael Champ
ATRP Corp., USA

Sodium Hypochlorite as a Ballast Water Biocide

David Stocks
BMT Fleet Technology Limited, Canada

The Present Status of GloBallast Programme in the Persian Gulf

Ahmad Parhizi
GEF/UNDP/IMO Global Ballast Water Management Programme, Iran

Design of Process Modules for Ballast Water Treatment onboard

Anja Kornmoeller
Berkefeld Water Technology, Germany

Can we ever remove, kill or inactivate all the Micro Organisms from Ships' Ballast Water and should we try?

Fred Dobbs
Old Dominion University, USA

Ballast Water Treatment Approval Challenges on Scaling and Representativeness

Hanna Lee Behrens
DNV, Norway

How accurate is Ballast Water Reporting?

Kelly Lyles
Duke University, USA

Treatment of Ballast Water (Trebawa)

Filiz Aslan
Universities of Glasgow and Strathclyde, UK

Ballast Water Filtration

Claus Beiersdorfer
Boll & Kirch Filterbau GmbH, Germany

US Coast Guard

The Coast Guard is the United States' oldest continuous seagoing service with responsibilities including Search and Rescue, Maritime Law Enforcement, Aids to Navigation, Icebreaking, Environmental Protection, Port Security, and Military Readiness. The Coast Guard develops national regulations and policies on domestic marine environmental protection and represents U. S. interests in the development of global marine environmental protection agreements.



IMO-GEF-UNDP GloBallast Programme

The GloBallast programme aims to assist developing countries to reduce the transfer of invasive marine species in ballast water. The programme is working through six initial demonstration sites, to implement the existing IMO guidelines and prepare for the new international regulatory regime.



Treatment of Residual Ballast Water in the NOBOB Ship using Heat

David Stocks

BMT Fleet Technology Limited, Canada

A Ballast Water Processing System utilizing Electrical Disinfection: From Design to Development to Commercial Operation

Karen Steele

Marine Environmental Partners, Inc. (MEP), USA

Biological Efficiency of Ballast Water Exchange

Flavio Da Costa Fernandes

Brazilian Navy, Brazil

Resource BWT System Update

Ian Vroom

Resource (Pty.) Ltd, South Africa

PERACLEAN® Ocean - a Promising and Effective Treatment Option for Ballast Water

Rainer Fuchs

Degussa AG , Germany

Numerical and Experimental Testing of Ballast Water Equipment-A Case Study

Rajnish Calay

University of Hertfordshire, UK

Land-Based Type Approval Tests of Ballast Water Treatment Systems

Stephan Gollasch

GoConsult, Germany

Electrolytic Treatment of Ships' Ballast Water

Dang Kun

Dalian Maritime University, China

Impacts Of Golden Mussel, Limnoperna Fortunei (Dunker,1857), in Brazil

Robson Jose Calixto / Flavio da Costa Fernandes

Ministry of Environment, Brazil

Ballast Water Discharge Regulations at Yanbu (Red Sea) and its Impacts on Coral Reef Ecosystem

Joseph Paimpillil

Center for Earth Research & Environment Management, India

Ecofriendly Harbor - Role in Protection of Coastal Eco-Systems and Ballast Water Management

Chunduri Jayaprada

Tolani Maritime Institute, India

Geographical Information System "INVADER" Online Version: Invasive Species of the Baltic Sea

Vadim Panov

Zoological Institute of the Russian Academy of Sciences, Russian Federation, Russia

Capacity Building in Ballast Water Management

Enir Girondi Reis

TRAIN-SEA-COAST Programme, Brazil

The Emerging South African Ballast Water Management System

Adnan Awad

GEF/UNDP/IMO Global Ballast Water Management Programme, South Africa

OptiMarin Combining Technologies into New Devices

Birgir Nilsen

OptiMarin AS, USA

The Case for Shore Based Ballast Water Disinfection

Glenn Thornton

Hi Tech Marine Pty. Ltd, Australia

Plan of Administration of Ballast Water

Pedro Santos Carvalho

Rio de Janeiro Federal University, Brazil

U.L.C.C. Model Tanker M/T ANVEERO ñ CHUNCHI

Capt V J Mehta

Sea Scan Maritime Academy, India

BenRad System

Patrick Dahl

BenRad Marine Technology AB, Sweden

Studies on killing the Invasive Marine Species in Ship's Ballast Water Using Advanced Oxidation Technology

Mindong Bai, Dalian Maritime University, China

Ballast Water Exchange in Regional Seas

Tracy McCollin, FRS Marine Laboratory, UK

The Exhibition

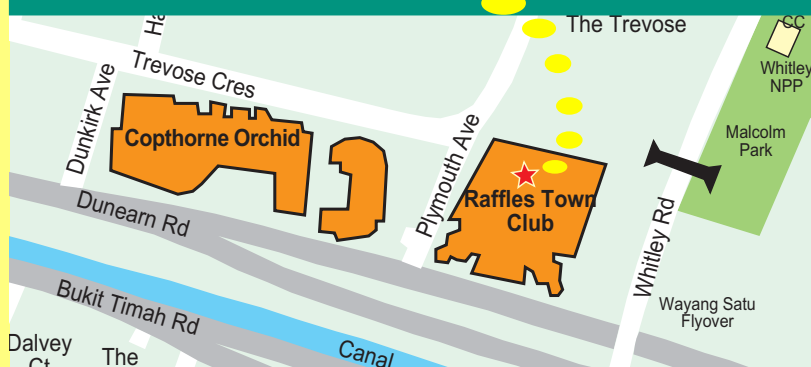
In conjunction with the Conference, there will be an exhibition for suppliers of ballast water treatment, monitoring and related systems.

Exhibition tables (3ft x 6ft) will be located next to the meeting room for the duration of the Conference. A "pop-up" display (not exceeding 6ft width) can be placed behind the table. For wider displays, exhibitors can book two or more tables. Each exhibitor will be allowed 2 FOC participants to our Conference. Cost: S\$3000 per table

Conference Venue

Raffles Town Club

Plymouth Avenue • Singapore 297753 Tel: 6323 2323



Recommended Hotels

Copthorne Orchid Hotel

214 Dunearn Road • Singapore 299526

Tel : 64156069 • Fax : 62554494

Website : www.copthorne.com.sg

Superior (Single/Twin) S\$100/\$110nett (with breakfast)

Traders Hotel

1A Cuscaden Road • Singapore 249716

Tel : 67382222 • Fax : 68314317

Website : www.shangri-la.com

Superior Single/Twin S\$169nett (with takeaway breakfast)

Shangri-La Hotel

22 Orange Grove Road • Singapore 258350

Tel : 67373644 • Fax : 67373257

Website : www.shangri-la.com

Website Rate: Tower Wing (Single / Twin) \$298nett

Metropolitan YMCA

60 Stevens Road • Singapore 257854

Tel : 68398333 • Fax: 67372297

Website : www.mymca.org.sg

Website Rate : Superior Single / Twin S \$76nett (with breakfast)

Please quote: "NTU"

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For more information on:

Singapore,

please visit:

www.visitsingapore.com



Technical Programme Advisory Committee

Prof. Tay Joo Hwa, Director (Chairman)

Institute of Environmental Science and Engineering, Singapore

Prof. Chan Eng Soon, Director

Tropical Marine Science Institute, Singapore

Prof. Thomas Waite, Programme Director

National Science Foundation, USA

Dr. Richard Everett, Research Coordinator

ANS Programme, US Coast Guard, USA

Mr. Dandu Pughiuc, Chief Technical Advisor

GloBallast Programme, IMO, UK

Mr. Toh Ah Cheong, Director (Technology)

Maritime and Port Authority of Singapore

Mr. Mike Hunter, Head, Environmental Quality Branch

Maritime and Coast Guard Agency, UK

Mr. Steve Raaymakers, Technical Advisor

GloBallast Programme, IMO, UK

Mr. Aage Anderson

DNV Environmental Advisory Services, Norway

Dr. Edward Lemieux, Head

*Centre for Corrosion Science and Engineering
Naval Research Laboratory, USA*

Prof. Fukuyo Yasuwo

Asian The University of Tokyo, Japan

Mr. Tom Stevens, SWP Pilot Manager

National Sanitation Foundation International, USA

Dr. Jose Matheickal, Senior Research Scientist

*Institute of Environmental Science and Engineering,
Singapore*

Organizing Committee

Dr. Jose Matheickal (Chairman)

*Institute of Environmental Science and Engineering,
Singapore*

Dr. Richard Everett

US Coast Guard, USA

Mr. Toh Ah Cheong

Maritime and Port Authority of Singapore

Prof. Chan Eng Soon

Tropical Marine Science Institute, Singapore

Mr. Steve Raaymakers

GloBallast Programme, IMO, UK

Mr. Leslie Loke

*Institute of Environmental Science and Engineering,
Singapore*

Ms. Tan Kim Suan

*Institute of Environmental Science and Engineering,
Singapore*

Mr. Frank Weitz

*Institute of Environmental Science and Engineering,
Singapore*

Professional Development Units (PDU) for Singapore Professional Engineers

This Conference is an accredited activity under the Professional Engineers Board, Singapore. Delegates under the Singapore Continuing Professional Development Programme will be entitled to **20 PDU points** when they participate in the Conference.

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Please write in BLOCK letters

REGISTRATION FORM

Register by 8 April 2004

Participant (1)

Name : Prof/Dr/Mr/Ms

Designation : _____

Company : _____

Address : _____

Country: _____

Email : _____

Tel : _____

Fax : _____

Meal request : Muslim ☐ Vegetarian ☐

Guest : Name _____ Welcome Dinner ☐

Guest : Name _____ Welcome Dinner ☐

Participant (2)

Name : Prof/Dr/Mr/Ms

Designation : _____

Company : _____

Address : _____

Country: _____

Email : _____

Tel : _____

Fax : _____

Meal request : Muslim ☐ Vegetarian ☐

Guest : Name _____ Welcome Dinner ☐

Guest : Name _____ Welcome Dinner ☐

Additional Participants: please furnish details on a separate form.

Contact Person

Name: _____ Designation: _____

Company & Address : _____

Country: _____

Email: _____ Tel: _____ Fax: _____

Registration Form please fax/email to:

Ms Adeline Soong
Corporate Communications Officer
Institute of Environmental
Science & Engineering
Tel: (65) 6794-1534
Fax: (65) 6792-1291
Email: LPSoong@ntu.edu.sg

CONFERENCE FEE

Participant ■	S\$750
Presenter ■	S\$650
Student ■	S\$450
Exhibitor ■	S\$3000 *

* 1 No. Table top exhibition + 2 FOC participants

Welcome dinner: Guest - S\$50

Conference Fee:
includes all materials,
tea breaks, lunches,
welcome dinner and
5% GST.

Discount - a 10% discount will be given for 3 or more participants from the same company. Registration and payment for all 3 participants must be submitted together to enjoy the discount.

Register Online at:
www.ntu.edu.sg/iese/ballast2004

Payment Details

Please note :

1. *Transfer : If you are unable to attend, a substitute delegate is welcome at no extra cost. Please furnish the name and title of the substitute delegate at least 5 days prior to commencement of Conference.*
2. *Cancellation : This should be conveyed to the organisers in writing. An administration charge of 50% of the Conference fee will be levied if cancellation is received less than two weeks before commencement of the event.*
3. *Refund : No refund will be given for cancellation conveyed less than one week before commencement. Any refund will be made by IESE after the Conference.*
4. *The organisers reserve the right to cancel the Conference, with full refund, due to unforeseen circumstances.*

Participant/s Fee	S\$ _____
<u>Less</u> Discount	S\$ _____
Sub Total	S\$ _____
<u>Add</u> Guest/s Fee	S\$ _____
Grand Total	S\$ _____

My cheque/bank draft No: _____ is enclosed.

Cheques/bank drafts to be made payable and mailed to:

Nanyang Technological University
Innovation Centre (NTU), Block 2 Unit 237
18 Nanyang Drive, Singapore 637723
Tel: 65-6794 1534/65-6794 1533

Tax invoice required: Yes ☐ No ☐